

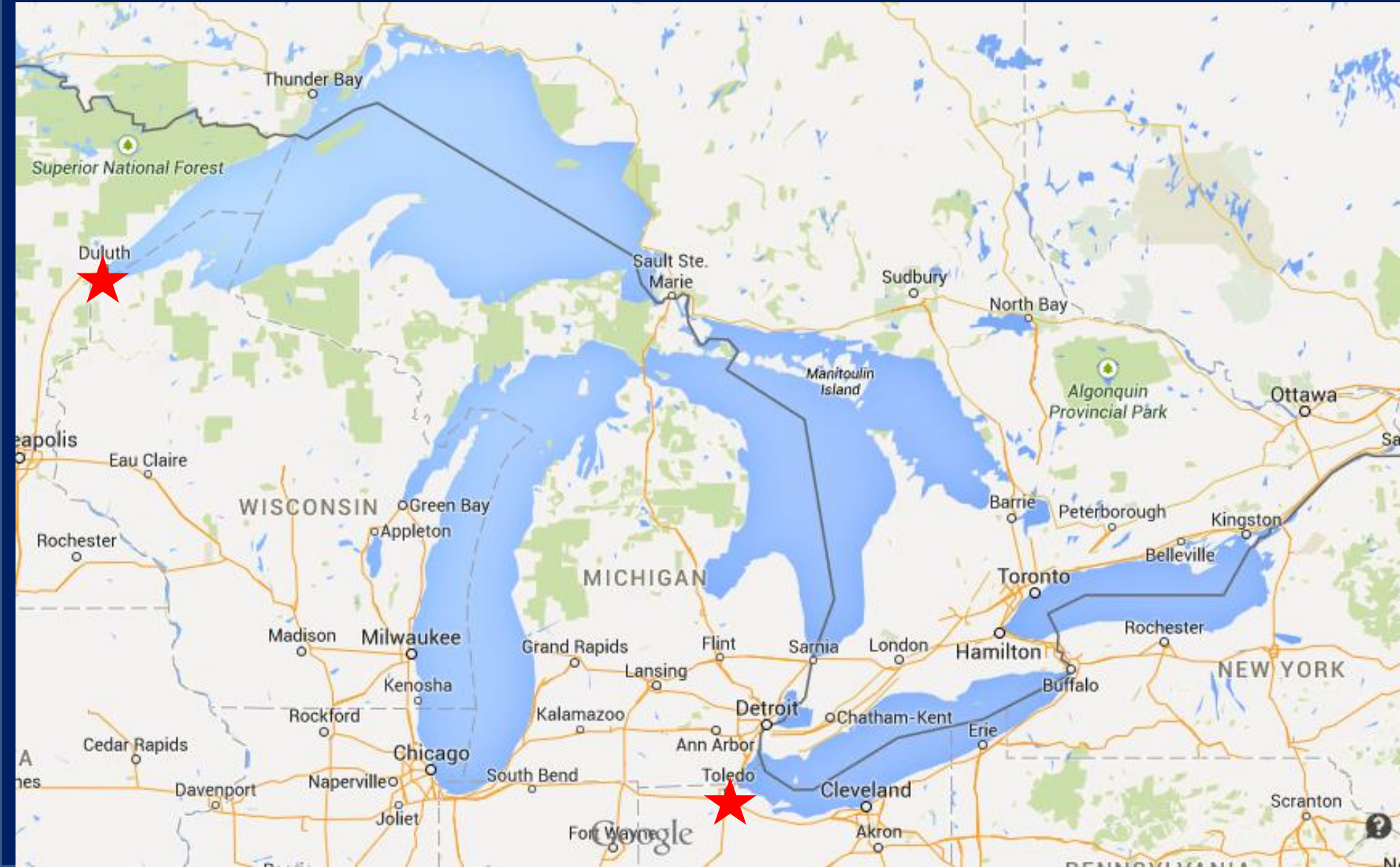
# Update on Newly Available Green Infrastructure Products

Rachael Franks Taylor  
September 16, 2015



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# Great Lakes Study Sites



# A Tale of Two Cities

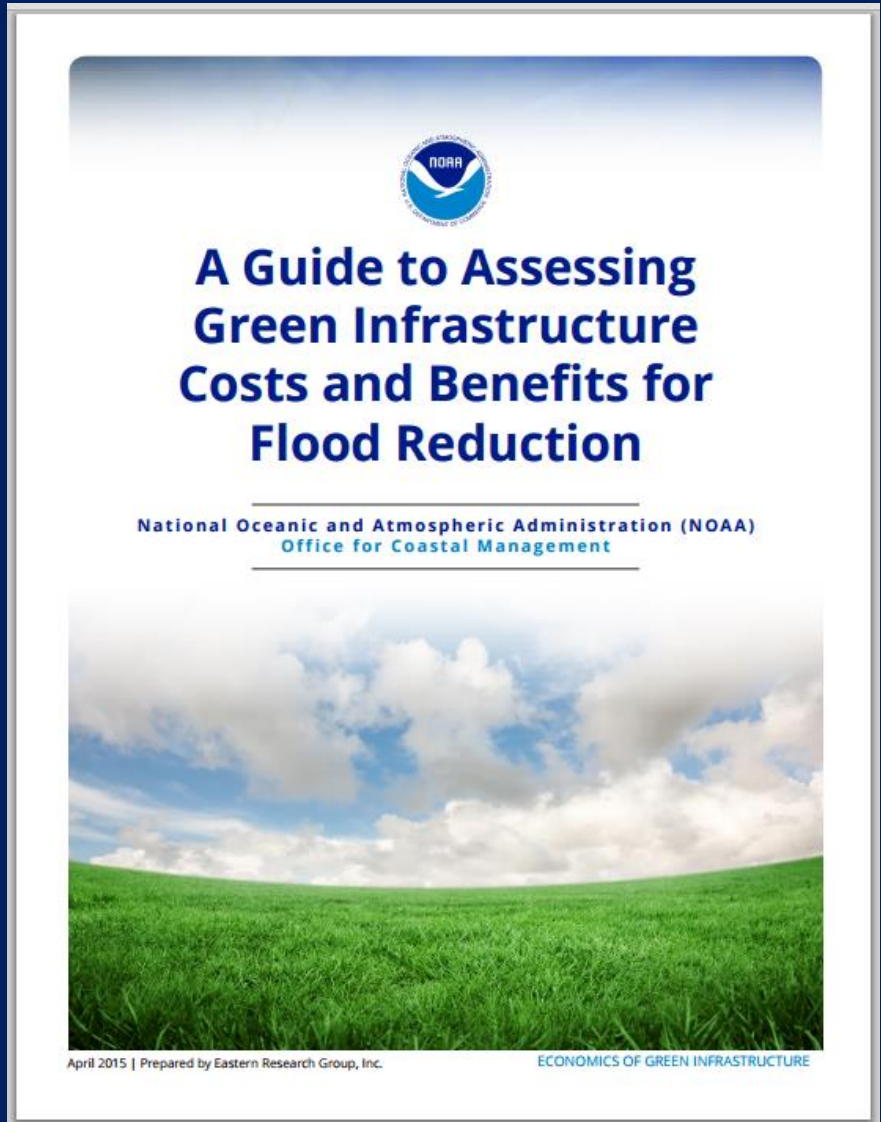
## Assessing Green Infrastructure Costs and Benefits in Toledo, Ohio and Duluth, Minnesota

- Project presentation was recorded on June 16, 2015, as part of Ohio State University's Changing Climate Webinar Series
- Presentation is accessible at <http://changingclimate.osu.edu/webinars/archives/2015-06-16/>
- Project team available to join a future monthly call for any additional questions and answers



# Resulting Products

- Step-by-step process guide for communities



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# Economic Assessment of Green Infrastructure Strategies for Flood Reduction

*[www.coast.noaa.gov/digitalcoast/publications/gi-cost-benefit](http://www.coast.noaa.gov/digitalcoast/publications/gi-cost-benefit)*

## Duluth



## Toledo





# Economic Assessment of Green Infrastructure Strategies for Flood Reduction

*[www.coast.noaa.gov/digitalcoast/publications/gi-cost-benefit](http://www.coast.noaa.gov/digitalcoast/publications/gi-cost-benefit)*

## Assessment Framework



**Step 1:**  
Define  
flooding  
problem



**Step 2:**  
Assess flooding  
scenarios  
without green  
infrastructure



**Step 3:**  
Identify how  
flood reduction  
target can be  
met with green  
infrastructure



**Step 4:**  
Assess flooding  
scenarios with  
green  
infrastructure

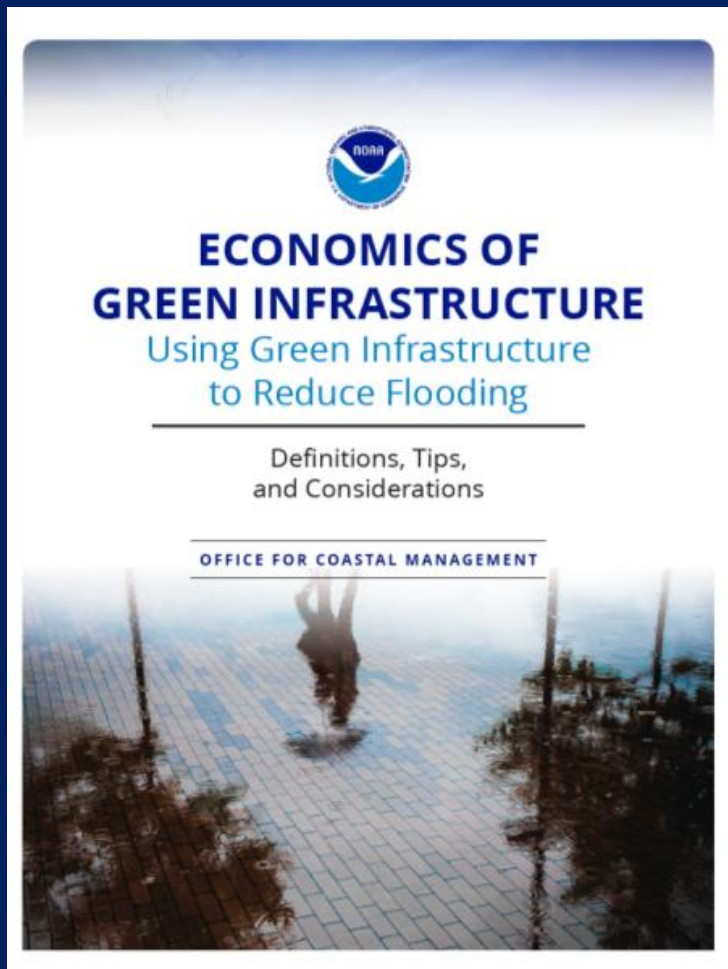


**Step 5:**  
Estimate costs  
and benefits



**Step 6:**  
Identify and  
communicate  
desired green  
infrastructure  
strategy

# Companion Pieces



Green Infrastructure Options

Green Infrastructure Geospatial Data Needs Matrix		Assessment Process Steps					
		Step 1: Define the Flooding Problem	Step 2: Assess Current and Future Flooding Scenarios	Step 3: Identify Flood Reduction Options Using GI	Step 4: Assess Flooding Scenarios with GI Options	Step 5: Compare Benefits and Costs	Step 6: Develop Approaches to Implement Desired Options
<p>This matrix provides a list of data used to conduct two pilot projects in the Great Lakes assessing the costs and benefits of using green infrastructure to reduce flooding impacts. These data are the best available from national, state, and municipal data sources and models. They are suitable for watershed-scale studies. Work with your local GIS analyst to discuss the data available for your assessment.</p> <p>✓ Required: Data that gets you through the process    ⓧ Optional: Data that helps to improve the process</p>							
<b>Land Data</b>							
Land Use, Current		✓	✓	✓	✓	ⓧ	ⓧ
Land Use, Future		✓	✓	✓	✓	ⓧ	ⓧ
Land Cover, Current		ⓧ	✓	✓	✓	ⓧ	ⓧ
Land Cover, Historical		ⓧ	✓	✓	✓	ⓧ	ⓧ
Digital Elevation Models (DEMs)		ⓧ	✓	ⓧ	✓		ⓧ
<b>Weather &amp; Climate Data</b>							
Precipitation, Current		ⓧ	✓		✓		ⓧ
Climate, Current		ⓧ	✓	ⓧ	✓		ⓧ
Precipitation, Future			✓		✓		ⓧ
Climate, Future			✓	ⓧ	✓		ⓧ
<b>Hydrology Data</b>							
Historic Flood Locations		✓		ⓧ		ⓧ	ⓧ
Watershed(s) Delineations		✓	✓	ⓧ	✓		ⓧ
Streams		✓	✓	ⓧ			ⓧ
Stream Points		✓	✓	ⓧ	✓		ⓧ
FEMA Regulatory Maps		ⓧ	✓	ⓧ		ⓧ	
FEMA Digital Flood Insurance Maps (DFIRM)		ⓧ	✓	ⓧ	✓	ⓧ	
FEMA Flood Insurance Studies (FIS)		ⓧ	✓	ⓧ		ⓧ	
USGS Regression Equations			✓	ⓧ	✓		
Basin Storage %			✓	ⓧ	✓		
Basin Development Factor			✓		✓		
Main Channel Slope			✓	ⓧ	✓		
Rural Peak Discharge			✓		✓		
Inundation Grid(s)			✓	ⓧ	✓		ⓧ
Flow Direction Grid(s)		ⓧ	✓	ⓧ	✓		ⓧ
Flow Accumulation Grid(s)		ⓧ	✓		✓		ⓧ
<b>Social &amp; Economic Data</b>							
Social Vulnerability Index		ⓧ	ⓧ	ⓧ		ⓧ	ⓧ
Bureau of Labor Statistics Employment		ⓧ	ⓧ			ⓧ	ⓧ
<b>Infrastructure Data</b>							
Land Parcel / Assessor Database			✓	ⓧ	✓	ⓧ	
Stormwater Utilities		ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ
Building Structure		ⓧ	ⓧ	ⓧ	ⓧ	ⓧ	ⓧ
Green Infrastructure Sites, Current		ⓧ	ⓧ	✓	ⓧ	ⓧ	✓
Green Infrastructure Sites, Future					ⓧ	ⓧ	
Impervious Surface %		ⓧ	✓	ⓧ	✓		

Data Matrix



# More Green Infrastructure Information

The screenshot shows the NOAA DigitalCoast website interface. At the top is a navigation bar with the DigitalCoast logo and links for Data, Tools, Training, Stories, Topics, and GeoZone Blog. A search bar is on the right. The main content area is titled 'Green Infrastructure' under the 'Topics' section. A descriptive paragraph explains that natural areas provide benefits like water storage and flood protection. Below this are three columns of resources. The left column includes 'Coastal Flood Exposure Mapper', 'Coastal County Snapshots', and 'Habitat Priority Planner'. The middle column features 'Green Infrastructure Mapping Guide' and 'Introducing Green Infrastructure for Coastal Resilience'. The right column contains 'Coastal Resilience', 'Conserving Coastal Wetlands for Sea Level Rise Adaptation', and 'Economic Assessment of Green Infrastructure Strategies for Climate Adaptation'. Each resource has a brief description and a 'Get It Now' button. A 'View More Training' link is also present.

**DigitalCoast**  
OFFICE FOR COASTAL MANAGEMENT

Data Tools Training Stories Topics GeoZone Blog

Search

Topics

## Green Infrastructure

Natural areas (and man-made systems that mimic natural processes) provide numerous benefits, from natural water storage areas that protect communities from floods to cleaner air and water and great spaces for people to play. Here's a sample of what NOAA's Digital Coast provides to address this topic.

### Tools

**Coastal Flood Exposure Mapper**

See where your community assets are most vulnerable to coastal flooding. Use this information to start conversations about local risk reduction strategies.

[Get It Now](#)

**Coastal County Snapshots**

Get a quick look at how wetlands in your county contribute to safer, cleaner, and more economically productive coastal communities. Facts and data are displayed in easy-to-use graphics and handouts.

[Get It Now](#)

**Habitat Priority Planner**

Input your data and create maps, reports, and data tables on the fly, making it easier to see impacts from various planning approaches and scenarios.

[Get It Now](#)

### Training

**Green Infrastructure Mapping Guide**

Develop a GIS work plan to prioritize green infrastructure for coastal resilience.

[Get It Now](#)

**Introducing Green Infrastructure for Coastal Resilience**

Learn about key green infrastructure concepts and practices that support coastal resilience.

[Get It Now](#)

[View More Training](#)

### Information

**Coastal Resilience**

Access a suite of nature-based solutions that reduce social and economic risks.

[Get It Now](#)

**Conserving Coastal Wetlands for Sea Level Rise Adaptation**

Use this resource to get basic information and a "how-to" approach for coastal communities.

[Get It Now](#)

**Economic Assessment of Green Infrastructure Strategies for Climate Adaptation**

Learn about a framework used in the Great Lakes to assess the costs and benefits of using green infrastructure for flood reduction and get ideas to apply this in your community.

[Get It Now](#)

[www.coast.noaa.gov/digitalcoast/topic/green-infrastructure](http://www.coast.noaa.gov/digitalcoast/topic/green-infrastructure)



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# Great Lakes Coastal Resilience Planning Guide

*[www.greatlakesresilience.org](http://www.greatlakesresilience.org)*

- Local stories
- Case studies
- Tools, data, and resources
- Events and funding
- People and organizations



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